UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

March 13, 1992

IN REPLY
REFER TO: H-8-1
EPA ID #: CAD983578097

California EPA
Toxic Substances Control Division
10151 Croyden Way, Suite 3
Sacramento, CA 95827
Attn: Megan Cambridge

Dear Megan:

Enclosed please find the Preliminary Assessment report prepared by our contractor, URS Consultants, Inc., concerning their CERCLA inspection for the Geer Road Landfill site located in Modesto, CA.

EPA encourages your written comments on this report. They should note the EPA ID number given above and they should be sent to Site Assessment Manager, Rachel Loftin, EPA mail stop H-8-1. If you have any questions please contact Rachel at (415) 744-2348.

Sincerely,

Thomas A. Mix, Chief
Site Evaluations Section

Enclosure

10-49-011

Purpose: CERCLA Preliminary Assessment

Site: Geer Road Landfill
751 Geer Road
Modesto, California
Stanislaus County

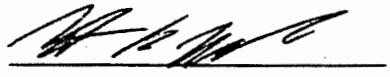
Site EPA ID Number: CAD983578097

URS Investigators: Chris Nelson

Date of Inspection: October 7, 1991

Report Prepared By: Chris Nelson

Report Reviewed By: Mitchell K. Middagh

Review/Concurrence: 

Report Date: January 31, 1992

Submitted To: Rachel Loftin
EPA Region IX
Work Assignment Manager

2353134

FINAL E Copy

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1.0 Introduction

The U.S. Environmental Protection Agency (EPA), Region IX, under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) has tasked URS Consultants, Inc. to conduct a Preliminary Assessment (PA) of the Geer Road Landfill site in Modesto, Stanislaus County, California.

The purpose of the PA is to review existing information on the site and its environs to assess the threat(s), if any, posed to public health, welfare, or the environment, and to determine if further investigation under CERCLA/SARA is warranted. The scope of the PA includes the review of information available from federal, state, and local agencies, and performance of an on-site reconnaissance visit.

Using these sources of information, the site is then evaluated using EPA's Hazard Ranking System (HRS) criteria to assess the relative threat associated with actual or potential releases of hazardous substances at the site. The HRS has been adopted by the EPA to help set priorities for further evaluation and eventual remedial action at hazardous waste sites. The HRS is the primary method of determining a site's eligibility for placement on EPA's National Priorities List (NPL). The NPL identifies sites at which EPA may conduct remedial response actions. This report summarizes URS' findings of these preliminary investigative activities.

The Geer Road Landfill site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on November 13, 1990. The reason the Geer Road Landfill site was entered into CERCLIS is not apparent to URS Consultants. It may have been entered due to involvement on the part of the Regional Water Quality Control Board and their request to have a Remedial Investigation/Remedial Design Report completed for the site addressing groundwater contamination.

1.1 Apparent Problem

In 1986 the operators of the Geer Road landfill were directed by the California Regional Water Quality Control Board (RWQCB) to conduct a Water Quality Solid Waste Assessment Test (SWAT) under the requirements of the Calderon Bill. As part of the investigation, six groundwater monitoring wells were installed at the landfill to determine if landfill wastes were degrading water quality in the aquifers underlying the site. Samples collected from these new wells indicated that shallow groundwater beneath the site had become contaminated with halogenated volatile organic compounds (VOCs), some of which exceeded recommended State and Federal Drinking Water Standards.

Two drinking water wells, one on the landfill and one south of the landfill, revealed levels of vinyl chloride above State and Federal Drinking Water Standards, and were subsequently closed. The SWAT study also included sampling of the nearby Tuolumne River for contaminants which may have leached out of the landfill. Results of these samples indicated that landfill leachate did not appear to be affecting nearby waters of the Tuolumne. The landfill was in operation between 1972 and July 1990 (1,2).

2.0 Site Description

2.1 Location

The Geer Road Landfill is located at 751 Geer Road, Modesto, California (T3S, R10E, Sections 3 and 34, Mount Diablo Baseline and Meridian; Latitude 37° 37' 11.5" north and Longitude 120° 51' 10.5" west) (Figure 1). The site lies approximately five miles east of Modesto, California. Other surrounding communities include Hughson to the south, Empire to the west, and Hickman and Waterford to the east. The main roads near the site are Hatch Road to the south, and Yosemite Avenue (Route 132) to the north (3,4).

2.2 Site Description

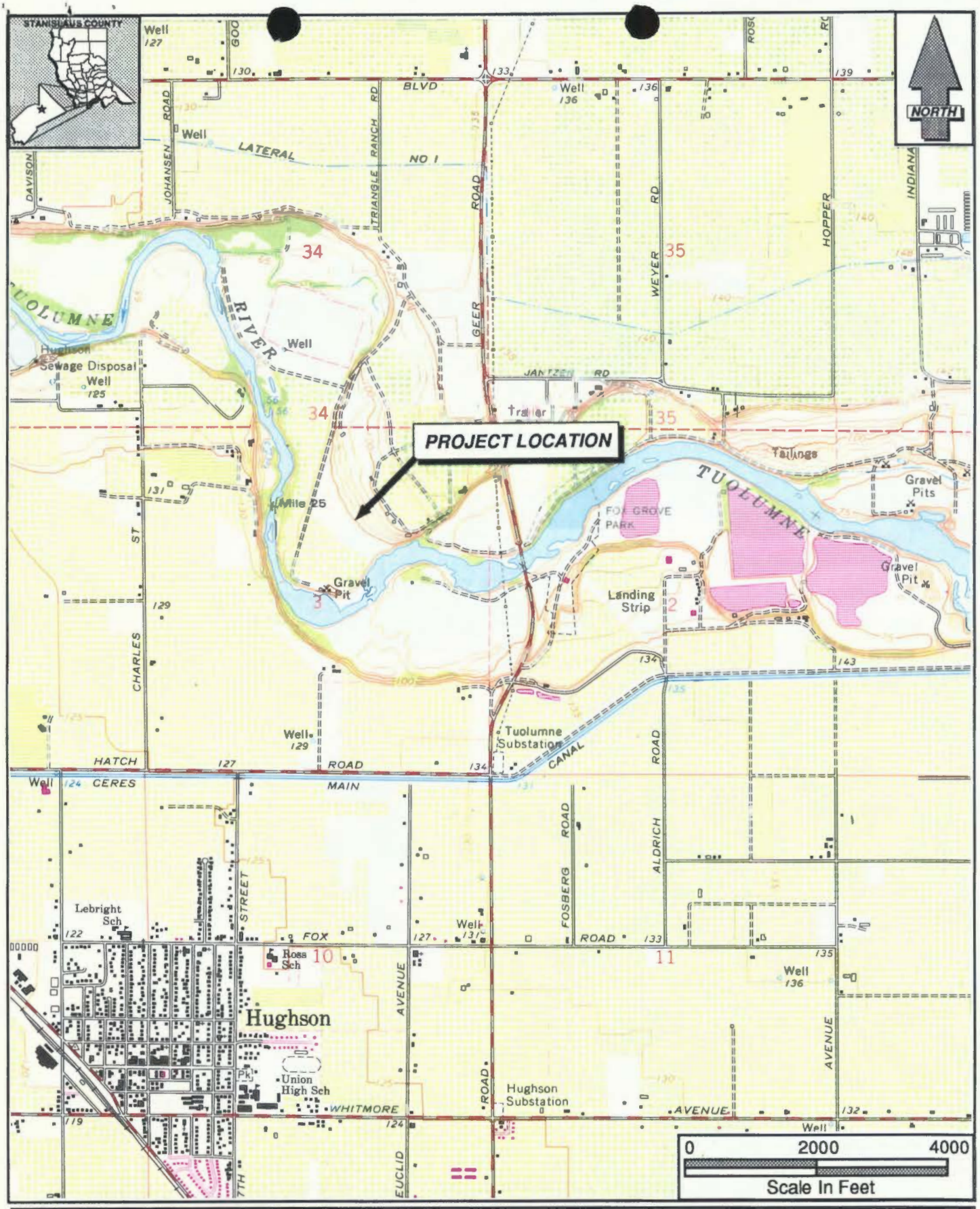
The landfill covers 164 acres, of which 144 acres were used for waste disposal. The site has been closed since July 31, 1990, and no wastes have been accepted at the landfill since that time. The site is situated just north of a meander bend of the Tuolumne River. Surrounding the landfill are pear and walnut orchards, a few farm houses, and a mobile home trailer park directly across the street on Geer Road. The landfill was fully developed and operational by 1972. The site consists of two separate cells for waste disposal separated by an entrance road, an office (scalehouse), scale, and maintenance shed (Figure 2). There are two production wells on the landfill. One well is a large capacity agricultural well used for site closure maintenance activities. The other well is closed but served as a drinking water well for the 15 landfill employees. The entire landfill is surrounded by a barbed wire fence and a berm that has a slope consisting of a 3-foot vertical rise to every 1 foot of horizontal run.

At the south end of the landfill is a sedimentation basin designed to collect storm water runoff which is routed off the landfill and into this impoundment. Two 36-inch corrugated steel pipes have been placed in the south end of the basin. These pipes drain the surface runoff out of the basin and into the Tuolumne River. The remaining sediments are removed from the basin and spread out over the landfill surface (4).

At the south edge of the landfill is a "borrow area" used for collecting soil to spread out on the landfill surface for closure activities. This location was once the site of a residence owned by the Byous family. The Stanislaus County Department of Public Works purchased this land and removed the structures when it was discovered that the well on site had become contaminated with VOCs (4).

2.3 Operational History

The landfill is owned and was operated by the Stanislaus County Department of Public Works and accepted municipal solid waste from surrounding communities from 1971 to 1990. Other wastes accepted at the landfill were from nearby vegetable canneries. The landfill operators indicate that hazardous wastes were never knowingly accepted at the site (1). During a site visit by URS representatives, the landfill superintendent indicated that the only activities taking place at the site since July, 1990 have been related to groundwater investigations and closure activities. No wastes are currently being accepted at the site (4).



URS Consultants
401 East Ocean Boulevard
Long Beach, CA 90802
October 31, 1991

Site Location Map

Geer Road Landfill
751 Geer Rd., Modesto, CA

FIGURE

1

WA Critical Infrastructure-Water Assessments

[redacted]

2.4 Regulatory Involvement

The landfill has been regulated by the State Solid Waste Management Board (Waste Board), the Stanislaus County Department of Environmental Resources (SCDER), and the Regional Water Quality Control Board (RWQCB). The Waste Board has jurisdiction over the landfill regarding closure activities, and is responsible for reviewing and concurring with all closure plans at the site. The local enforcement agency which acts on behalf of the Waste Board is represented by SCDER. SCDER has also been involved with reviewing environmental investigations at the site (Water SWAT and an Air Quality Solid Waste Assessment Test [Air SWAT]). In 1976 four monitoring wells were installed at the landfill. It is unclear to URS which agency required the landfill operators to install these wells. In 1985 SCDER sampled the aforementioned wells in addition to several off-site domestic wells for pesticides and VOCs. Two monitoring wells and two domestic wells indicated that VOCs such as chloromethane, dichlorodifluoromethane (Freon-12), methylene chloride, dichloroethenes, dichloroethanes, trichloroethylene (TCE) and perchloroethylene (PCE) had contaminated groundwater in the vicinity of the site. Pesticides were reportedly not detected in the wells (1).

The site was issued Waste Discharge Requirements (WDRs) Order No. 77-189 in 1977 by RWQCB, and revised WDRs were issued in 1989 (Order No. 89-205). WDRs essentially state that the permittee is precluded from allowing wastewaters or contaminants to enter the public waters of the State of California. RWQCB is currently drafting another set of revised WDRs for the site (6).

Since 1985 a total of 19 groundwater monitoring wells have been installed in both the deep and shallow aquifers underlying the site. The Central Valley RWQCB has been monitoring the progress of groundwater investigations at the site and is anticipating a remedial action plan for the treatment of contaminated groundwater by January of 1992. Consultants for Stanislaus County have been retained to design an activated carbon filter treatment system coupled with groundwater extraction wells. According to the project manager at RWQCB, consultants for Stanislaus County have already installed a partial treatment system; however, RWQCB has not approved the remediation plans for the site (2,6).

Within the auspices of SCDER, the local Air Pollution Control District approved an Air SWAT conducted by Brown and Caldwell for Stanislaus County in June, 1987. The Air SWAT consisted of installing landfill gas probes into the landfill to determine the percentage of landfill gases present, as well as collecting ambient air samples above the surface and downwind of the site. Results of these samples indicated that ambient air above the surface of the landfill was contaminated with methylene chloride (3,200 ppb), PCE (540 ppb), trichloroethane (TCA) (50 ppb), and TCE (80 ppb) (5).

3.0 HRS Factors

The Hazard Ranking System (HRS) is a scoring system used to assess the relative threat associated with actual or potential releases of hazardous substances from sites. It is the principal mechanism the EPA uses to place sites on the National Priorities List (NPL). URS has evaluated the following HRS factors relative to this site.

3.1 Sources of Contamination

The landfill operators indicate that hazardous waste has never been knowingly accepted at the landfill. The volume of waste estimated to have been deposited at the landfill by 1987 was 10,180,000 cubic yards (6). Hazardous wastes have not been accepted at the landfill; however, it is likely that small quantities of household hazardous wastes entrained in the wastestream may be degrading groundwater quality beneath the site (1). Stanislaus County personnel indicate that the apparent cause of groundwater contamination could be existing landfill gases. Jerry Irons of the Stanislaus County Department of Public Works indicated that high levels of VOCs in landfill gas may be driving the groundwater contamination (2).

Vadose zone soil samples collected from slant borings beneath the landfill in 1987 revealed non-detectable levels of VOCs, pesticides and heavy metals (1).

Contaminants have been detected in the shallow aquifer beneath the site. Samples collected from on-site monitoring wells in January, 1991 revealed the following: MW-16S (background well) did not reveal any halogenated volatile organics; MW-13S dichlorodifluoromethane 25 µg/L; 1,1,1-TCA 5 µg/L; MW02-S TCE 5.5 µg/L; and MW-04S vinyl chloride 5.1 µg/L (7).

3.2 Groundwater Pathway

3.2.1 Hydrogeologic Setting

Geer Road Landfill is located in the San Joaquin Valley which comprises the southern half of the Great Valley Physiographic Province. The Great Valley Physiographic Province extends from Redding to the Tehachapi Mountains, a distance of about 450 miles. In the vicinity of Geer Road Landfill, the sedimentary deposits are approximately 11,000 feet in thickness (17). The Great Valley is comprised of the Recent fluvial deposits, Older Alluvium, unconsolidated continental deposits, and consolidated sedimentary and volcanic rocks.

The Recent fluvial deposits consist of sand and gravel ranging from 40 to 50 feet in thickness (17). The Older Alluvium is comprised of laterally discontinuous beds of gravel, sand, silt, and clay and includes the Tulare formation. The Older alluvium extends from the ground surface to a depth of approximately 300 feet (18).

The Corcoran Clay is a member of the Tulare formation and occurs at a depth of approximately 160 feet in the Modesto area. It is a fine-grained lacustrine and marsh deposit which locally includes sand and gravel (18). The Corcoran Clay is approximately 40 feet in thickness and pinches out northwest of Modesto (17). The clayey nature of the bed restricts the vertical movement of water, and therefore it functions as a confining bed (18).

The Older Alluvium contains two water-bearing zones, an unconfined aquifer above the Corcoran Clay and a confined aquifer below the Corcoran Clay. The unconfined aquifer contains most of the water-supply wells in the area because of the relatively shallow depth to water (approximately 50 feet) and suitable water quality (17). Well yields are as much as 4,450 gallons per minute, with mean yields of approximately 1,900 gallons per minute (19).

The confined aquifer extends from the bottom of the Corcoran Clay to the top of the consolidated sedimentary and volcanic rocks and includes the Older Alluvium and unconsolidated continental deposits (17). These deposits are characterized by moderate to large hydraulic conductivities and transmissivities are about 59,500 gallons per day per foot. Yields to wells are as large as 2,100 gallons per minute (18).

The unconsolidated continental deposits consist of sand, silt and clay and are generally finer-grained than the overlying Older Alluvium. The unconsolidated continental deposits extend from approximately 300 to 700 feet below the ground surface (17). Hydrogeologically, these deposits are linked together with the Older Alluvium that lies below the Corcoran Clay and forms a confined aquifer.

Beneath the Geer Road landfill, groundwater occurs in sandy and gravelly beds of alluvium at approximately 20 feet below ground surface (bgs) at the south end of the landfill near the river and approximately 60 feet bgs in the northern portion of the landfill. Groundwater levels fluctuate seasonally by as much as 5 feet. There are 19 monitoring wells (4 deep and 15 shallow) in place at the landfill. These wells are sampled quarterly by consultants for Stanislaus County. Samples are analyzed for halogenated and aromatic VOCs, inorganics and general chemistry. The wells are also used to monitor groundwater flow direction and depth (1,7). Net annual precipitation for the Modesto area is 4.59 inches (13).

3.2.2 Groundwater Targets

Directly adjacent to the landfill (within 1,000 feet) is the Pinewood Meadows Mobile Estates trailer park. This mobile home park has a capacity of 178 trailers. Using 1991 Department of Finance data for Stanislaus County, URS estimated that as many as 516 people may live in the mobile home park. There are four domestic wells at the mobile home park, two active and two inactive. According to consultants for Stanislaus County, the Pinewood wells did not reveal detectable levels of halogenated volatile organics in 1987, while the landfill production well and the Byous well were both contaminated with VOCs exceeding drinking water standards. Both of these wells were taken out of production, while the Byous well was destroyed (1,6,7).

Within four miles of the site, groundwater wells exist for domestic, irrigation and public supply. The towns of Hughson and Empire are served by public water supply systems. Hughson is a small town two miles south of the landfill. The population of 3,379 people are served by two wells in the town limits (8,9). The town of Empire is approximately 2.5 miles northwest of the landfill. The population of Empire is served by a private water purveyor (Del Este Water Company) which also serves portions of East Modesto and other communities greater than four miles from the site (3,10).

3.2.3 Groundwater Conclusions

Contaminants from the site appear to have migrated to the underlying shallow aquifer. Two drinking water wells have been closed, while others exist within four miles. The site lies in a sparsely populated rural area of Stanislaus County. The extent of deeper aquifer contamination downgradient of the site has not been assessed through sampling of wells off site. In addition, the Tuolumne River may act as a barrier to groundwater flow, essentially precluding contaminants from migrating to aquifers that would normally appear hydraulically interconnected (1,4,6).

3.3 Surface Water Pathway

3.3.1 Hydrologic Setting

The site lies within a meander bend of the Tuolumne River, on a slightly elevated bluff above the river. The landfill topography slopes gently to the south and is engineered to drain into a maintained sedimentation basin on site (2,3). The landfill lies within Zone C, a zone of minimal flooding, according to Federal Emergency Management Agency maps dated August 1, 1980 (11). The Tuolumne River is used for irrigation purposes, groundwater recharge, recreation, fisheries, and wildlife habitat for 15 miles downstream of the site. There are no drinking water intakes on the Tuolumne in the vicinity of the landfill (4,14).

3.3.2 Surface Water Targets

Surface water supplies from the Tuolumne River do not serve as a drinking water source for 15 miles downstream of the landfill. The Tuolumne River is used to divert irrigation water into nearby canals, it provides habitats for fisheries and wildlife, and is used for recreational purposes (4,14).

3.3.3 Surface Water Conclusions

Consultants for the County have collected surface water samples upstream, at the discharge pipe from the sedimentation basin, and downstream from the site. These samples have not revealed detectable levels of VOCs, metals, or pesticides. Continued monitoring of surface water is required by WDRs issued to the landfill operators. The landfill lies in a zone of minimal flooding, and contamination lies well below the land surface; therefore it appears that the potential of a release of contaminants to surface water from the site is low (1,11,12).

3.4 Soil Exposure and Air Pathways

3.4.1 Physical Conditions

The landfill lies in a sparsely populated area of Stanislaus County surrounded by orchards and open space. There are residents living within 0.25 miles from the site to the east, south and west. The SCDER is overseeing closure activities at the site, including the installation of a gas flare system to remediate methane and VOC emissions. All wastes are buried by greater than two feet of clean soil. The site appears adequately secure from public access (2).

In June, 1987, consultants for Stanislaus County conducted an Air Quality Solid Waste Assessment Test of the Geer Road Landfill to determine the relative concentrations of landfill gases within the landfill itself, on the surface of the landfill and in ambient air upwind and downwind of the landfill (5).

Air samples were collected from sampling stations at the surface of the landfill at both upwind and downwind locations. Upwind samples did not indicate that landfill gases (VOCs and methane) were present; however, samples taken at a downwind station indicated the presence of TCE (80 ppb), TCA (50 ppb), methylene chloride (3,200 ppb), perchloroethylene (540 ppb) and methane (25,000 ppb) at levels exceeding greater than

three times the laboratory detection limit. It appears that air samples were not collected across Geer Road from the landfill at the trailer park (5).

3.4.2 Soil and Air Targets

The nearest residents live within 1,000 feet to the east, south and west of the site. According to 1980 U.S Census data, 12,184 people reside within four miles of the site, with the majority of the population distribution falling within 1-2 miles, 2-3 miles, and 3-4 miles away. This data base tends to underestimate the population in sparsely populated areas (14).

3.4.3 Soil and Air Conclusions

The risk of contaminants becoming airborne appears low due to the subsurface nature of the wastes and the future plans to install a gas flare system at the site. The site is adequately secured from public access. The possibility of nearby individuals being exposed to wastes on site appears low because all wastes are buried by more than 2 feet of clean soil. There are no residents living on the landfill, and there are approximately six workers performing closure maintenance activities at the site (2,5).

Within two and three miles of the landfill, there are sensitive environments for the following federally designated threatened and state designated threatened or endangered species: Valley elderberry longhorn beetle (Desmocerus californicus dimorphus), Western yellow-billed cuckoo (Coccyzus americanus occidentalis) and the Colusa grass (Neostapfia colusana) (16).

4.0 Emergency Response Considerations

The National Contingency Plan [40 CFR 300.415 (b) (2)] authorizes the Environmental Protection Agency to consider emergency response actions at those sites which pose an imminent threat to human health or the environment. For the following reasons emergency actions do not appear to be necessary for this site:

- Wastes are primarily subsurface in nature and are contained in groundwater and soil.
- The site is adequately secured from public access.

5.0 Summary

The Geer Road landfill site lies approximately five miles east of the City of Modesto. The site lies in a rural area of Stanislaus County surrounded by agricultural lands consisting primarily of fruit and nut orchards. The Tuolumne River meanders past the site approximately 50 feet from the southern base of the landfill. The landfill accepted Class II and III municipal solid wastes from approximately 1970 to 1990. Hazardous wastes were reportedly not accepted at the landfill; however, groundwater beneath the site is contaminated with a number of volatile organic compounds (VOCs). Samples collected from on-site monitoring wells have revealed that some of these compounds have exceeded State and Federal drinking water standards. The closest wells to the site are located across Geer Rd. to the east at the Pinewood Meadows Mobile Estates trailer park. Two production wells have been closed at the landfill due to VOC contamination. Although groundwater contamination exists beneath the site, the site lies in a sparsely

populated rural area greater than four miles from the cities of Modesto and Turlock. The Tuolumne River may act as a barrier to groundwater flow in the area.

The landfill operators are currently conducting closure activities at the site as required by the State Solid Waste Management Board and the Stanislaus County Department of Environmental Resources. The California Regional Water Quality Control Board is overseeing the quarterly monitoring of groundwater beneath the site and is scheduled to review a remediation plan for treating groundwater at the site. Landfill gases are present beneath the site and are currently being remediated by a flare system to burn off landfill gases as they are released through perimeter gas wells.

The following are the HRS factors pertinent to this site:

- A release of contaminants to groundwater apparently has occurred.
- There is a moderate waste quantity.
- The potential for a release of contaminants to surface water appears to be low.
- Landfill gas flares are being installed to remediate landfill gas migration and potential exposure of nearby residents.
- The site appears to be adequately secured from public access and wastes are subsurface in nature.

6.0 EPA Recommendation

	Initial	Date
No Further Remedial Action planned Under CERCLA		
Higher-Priority SI under CERCLA	RL	3-4-92
Lower-Priority SI under CERCLA		
Defer to Other Authority (e.g., RCRA, TSCA, NRC)		

References

1. J. H. Kleinfelder and Associates, *Phase II Soils and Groundwater Investigation and SWAT Report, Geer Road Landfill Stanislaus County, California*, June 15, 1987.

2. Irons, Jerry, and Tom Shaver, Stanislaus County Department of Public Works, and Chris Nelson, URS Consultants, Inc. (URS), Site Reconnaissance Interview and Observations Report, October 7, 1991.

3. U.S. Geological Survey, 7.5 minute topographic Quadrangle maps of Denair, CA, 1969 (photorevised 1976), Waterford, CA, 1969, Riverbank, CA, 1969 (photorevised 1976), and Ceres, CA, 1969 (photorevised 1987).

4. Wiggett, Gail, Ph.D., California Regional Water Quality Control Board (RWQCB), and Chris Nelson, URS, telephone conversation, October 29, 1991.

5. Brown and Caldwell, *Sacramento, CA, Solid Waste Air Quality Assessment Test Report*, Geer Road Landfill, September, 1987.

6. J. H. Kleinfelder, *Groundwater Monitoring Report, January, 1991, Geer Road Sanitary Landfill, Stanislaus County, California*, March 6, 1991.

7. Brighton, Dennis, Associate Planner, Stanislaus Area Association of Governments, and Chris Nelson, URS, telephone conversation, October 28,1991.

8. Mr. Bremmer, Town of Hughson, Supervisor of Public Works, and Julia Diradoni, URS, telephone conversation, October 25, 1991.

9. Mary, Receptionist, Town of Hughson, and Chris Nelson, URS, telephone conversation, October 30, 1991.

10. Turpen, Bud, Del Este Water Company, and Chris Nelson, URS, telephone conversation, October 31, 1991.

11. Cherrier, Ron, Stanislaus County Department of Public Works, and Chris Nelson, URS, telephone conversation, October 28, 1991.

12. California Regional Water Quality Control Board, *Waste Discharge Requirements for County of Stanislaus and City of Modesto, Closure of Geer Road Class III Landfill Stanislaus County*, Order No. 89-205, October 27, 1989.

13. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Environmental Satellite Data and Information Service, National Climatic Data Center, *Comparative Climatic Data for the United States Through 1985*, Nashville, Tennessee.

14. Calkins, Jeannie, Del Este Water Company, and Chris Nelson, URS, telephone conversation, October 28, 1991.

15. U.S. Environmental Protection Agency, Office of Toxic Substances, Graphical Exposure Modeling System, August, 1989.

References Continued

16. State of California Department of Fish and Game, Natural Diversity Data Base, Waterford, Denair, Riverbank , and Ceres, California 7.5 minute quadrangles, April 1, 1990.

17. Radian Corporation, *Geologic Summary Report: City of Modesto Ground-Water Remedial Investigation, Modesto, Stanislaus County, California*, Contract No. 84-84537, Task No. 1-1-1.0-P12100, June 5, 1987.

18. Balding, G.O. and R.W. Page, *Geology and Quality of Water in the Modesto-Merced Area, San Joaquin Valley, California, With a Brief Section on Hydrology,* U.S. Geological Survey, 1972.

19. Page, R.W., *Preliminary Appraisal of Groundwater Conditions in the Vicinity of Modesto*, California, U.S. Geological Survey, 1972.

Appendix A
Contact Log and Reports

Contact Log

Facility Name: Geer Road Landfill
Facility ID #: CAD983578097

Contact	Affiliation	Phone #	Date	Information
Sterling Davis	Central Valley Regional Water Quality Control Board	(916) 381-5600	9/12/91	Bill Marshall is the contact person for information on Geer Road Landfill.
Marsha Bradford	Fink Road Landfill	(209) 577-5492	9/13/91	See Contact Report.
Dale Davis	Fink Road Landfill	(209) 577-5492	9/17/91	See Contact Report.
Tom Shaver	Fink Road Landfill	(209) 837-4800	9/19/91	See Contact Report.
Virginia	Stanislaus County Assessors	(209) 525-6461	10/23/91	Assesors parcel numbers for Geer Road Landfill are 018-0321-900, & 009-2909-900.
Ron Cherrier	Stanislaus County - Dept. of Public Works	(209) 525-6552	10/23/91	See Contact Report.
Dennis Brighton	Stanislaus Area Assocation of Governments	(209) 558-7830	10/23/91	Average household size in Stanislaus is 2.916 persons, vacancy rate = 5.20.
Ron Bremmer	City of Hughson Dept. of Public Works	(209) 883-4054	10/25/91	See Contact Report.
Henry Rehder	Town of Waterford Dept. of Public Works	(209) 874-2328	10/25/91	Water supply for the town is provided by a private purveyor out of Modesto (Del Este Water Company). The town of Waterford has a population of approximately 5,500 people. Waterford is greater than 4 miles from the landfill.
Jeannie Calkins	Del Este Water Company	(209) 522-1071	10/28/91	See Contact Report.

Contact Log Continued

Contact	Affiliation	Phone #	Date	Information
Gail Wiggett	Central Valley Regional Water Quality Control Board	(916) 361-5739	10/28/91	See Contact Report.
Everett "Bud" Turpen	Del Este Water Company	(209) 522-1073	10/31/91	See Contact Report.

URS Consultants
Preliminary Assessment
Site Inspection Team

Contact Report

Contact Made Concerning:	**CAD983578097** **Geer Road Landfill** 751 Geer Road Modesto, California 95351
Agency or Affiliation Contact:	**Fink Road Landfill**
Department:	
Address:	4000 Fink Road
City, State, Zip Code:	Crows Landing CA 95313
County:	Stanislaus

Representative Contacted:

	1.	2.	3.
Name:	Marsha Bradford	Dale Davis	Tom Shaver
Title:	Recyling Coordinator	Solid Waste Mgr.	Superintendant
Contact Phone Number:	209-577-5492	209-577-5492	209-837-4800
Contact Date:	09/13/91	09/17/91	09/19/91

URS Representative:
Carrie Taylor

Comments:

09/13/91
I talked with Marsha and told her my objectives. She offered three names of persons who may be of help, but because of the status of the Geer Road facility, I would probably need to speak with the Manager of the Solid Waste Management Office for the City of Modesto, Mr. Dale Davis. He will be in on Monday, the 16th and I will contact him then.

09/17/91
I did get in touch with Dale Davis. He indicated that the Geer Road landfill is not part of his jurisdiction, but offered that the person in charge is Jerry Irons, Engineer Dept. Public Works (209) 525-6552 I called Jerry but he is on vacation until Monday, September 23. I asked the receptionist at the Public Works if I was calling the right place to suit my purpose. She indicated that the Geer Road Landfill is headed by a superintendant named Tom Shaver at 209-837-4800.

09/19/91
I called Tom and told him of the pending site investigation. He said that he was still in charge of the Geer Road Landfill, despite the fact that it is closed. He said that he would be the person to schedule the site inspection at the facility. I scheduled it for Monday, October 7, 1991 10:00 am at the site. Tom noted that all the records for Geer were located at the new Fink location, address listed above.

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☐ Phone ☒ Other Site Visit

10/7/91

CAD983578097
Geer Road Landfill

Contact Report (continued)

Fink Road Landfill: Contact: Marsha Bradford, Dale Davis, Tom Shaver

Comments Continued:

Directions to the Geer road facility: Take 99 South to the Hatch Road Exit, turn left (EAST) and go approximately 7 miles to where the road turns into a "T". Turn left (NORTH) and go across the river, approximately 1 mile. The landfill is on the left. All signs have been removed.

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☐ Phone ☒ Other Site Visit

10/7/91

URS Consultants
Preliminary Assessment
Site Inspection Team

Contact Report

Contact Made Concerning: **CAD983578097**
Geer Road Landfill
751 Geer Road
Modesto, California 95351
County of Stanislaus

Agency or Affiliation Contact: **Stanislaus County**
Department: Department of Public Works/Engineering
Address: 1100 "H" Street
City, State, Zipcode: Modesto CA 95354
County: Stanislaus

Representative Contact:

	1.	2.	3.
Name:	Ron Cherrier		
Title:	Sr. Engineering Tech.		
Contact Phone Number:	(209) 525-6552		
Contact Date:	10/23/91		

URS Representative:
Chris Nelson

Comments:

Spoke to Mr. Cherrier regarding floodplain zoning. The site appears to lie in either zone A (100 year flood zone) or zone C (minimal flooding i.e. less than 500 years). He said he would call back and let me know. He called back to inform me that the whole area is not in a flood zone (zone C minimal flooding). The reference for this is Federal Emergency Management Authority (FEMA) maps from August 1, 1980, #'s 0315A and 0550A in Community #060-384.

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☒ Phone ☐ Other _____

12/20/91

URS Consultants
Preliminary Assessment
Site Inspection Team

Contact Report

Contact Made Concerning: **CAD983578097**
Geer Road Landfill
751 Geer Road
Modesto, California 95351
County of Stanislaus

Agency or Affiliation Contact: **City of Hughson**
Department: Department of Public Works
Address: P.O. Box 9
City, State, Zipcode: Hughson CA 95326
County: Stanislaus

Representative Contact:

	1.	2.	3.
Name:	Ron Bremmer		
Title:	Director		
Contact Phone Number:	(209) 883-4054		
Contact Date:	10/25/91		

URS Representative: Julia Diridoni (Black & Veatch)

Comments:

WA Critical Infrastructure-Water Assessments

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☒ Phone ☐ Other _____

12/20/91

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Site Inspection Team

Contact Report

Contact Made Concerning:

CAD983578097
Geer Road Landfill
751 Geer Road
Modesto, California 95351
County of Stanislaus

Agency or Affiliation Contact: **Del Este Water Company**

Department:
Address: P.O. Box 3250, 430 Tenth Street
City, State, Zipcode: Modesto 95353
County: Stanislaus

Representative Contact:

	1.	2.	3.
Name:	Jeannie Calkins		
Title:	Office Manager		
Contact Phone Number:	(209) 522-1071		
Contact Date:	10/28/91		

URS Representative:

Chris Nelson

Comments:

10/28/91 - Ms. Calkins indicated that Del Este supplies the communities of Waterford, Empire, and East Modesto from 18 separate well systems. These systems comprise 3 service areas, and are separate geographic areas. The following towns and populations are served by the systems: Modesto; 2,300-2,400 people, town of Waterford; 1,500 service connections, town of Empire; 1,000 service connections, East Modesto; 4,000-4,100 people. As of now the systems all draw from 100% groundwater, there are no surface water intakes at this time. Future plans to include supplemental surface water supplies are 3 to 4 years down the line. Ms. Calkins will send a map outlining the service areas of Del Este and she indicated that the Service Manager, Bud Turpen could answer any other questions.

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☒ Phone ☐ Other _____

12/10/91

URS Consultants
Preliminary Assessment
Site Inspection Team

Contact Report

Contact Made Concerning:	**CAD983578097** **Geer Road Landfill** 751 Geer Road Modesto, California 95351 County of Stanislaus
Agency or Affiliation Contact:	**Central Valley Regional Water Quality Control Board**
Department:	
Address:	3443 Routier Road, Suite A
City, State, Zip Code:	Sacramento CA 95827
County:	El Dorado

Representative Contacted:

	1.	2.	3.
Name:	Gail Wiggett		
Title:	Assoc. Eng. Geologist		
Contact Phone Number:	(916) 361-5739		
Contact Date:	10/28/91		

URS Representative:
Chris Nelson

Comments:

Gail is the lead (Project Manager) at the Geer Road Landfill site. She has been involved with the site since December, 1986 when she was reviewing the Water Quality Solid Waste Assessment Test (SWAT) proposal for the landfill. Since that time, she has drafted Waste Discharge Requirements for the landfill and has reviewed and approved or commented on progress with remedial investigations at the site. The Water Board is essentially the lead agency in terms of water quality issues at the site. The California Integrated Waste Management Board and the Local Enforcement Agency (Stanislaus County Department of Environmental Resources or SCDER) are overseeing and monitoring closure activities at the landfill, and according to Ms. Wiggett the landfill is under a Notice of Violation of their Solid Waste Facilities Permit as issued by SCDER. This is as of April 26, 1991. The violation is apparently related to air quality problems associated with landfill gas migration and for not submitting an adequate closure plan to SCDER. According to Ms. Wiggett, the landfill must submit a final closure plan to SCDER by 11/15/91 (this deadline was not achieved).

The Regional Water Quality Control Board (RWQCB) issued its original waste discharge requirements to the Geer Road Landfill, order No. 77-189, sometime in 1977. The existing Waste Discharge Requirements (which essentially state that no waste may be discharged to Public Waters of The State of California) are Order No. 89-205, which were issued in 1989. Ms Wiggett is in the process of preparing revised Waste

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☒ Phone ☐ Other _____

12/20/91

CAD983578097
Geer Road Landfill

Contact Report (continued)

Central Valley Regional Water Quality Control Board: Contact: Gail Wiggett, ,

Comments Continued:

Discharge Requirements for the site. As of October 28, 1991 the landfill operators have not issued to RWQCB any formal reports of proposals for a groundwater remediation system. There is, however one remediation well in place which was apparently installed by Emcon Associates (consultants for Geer Road Landfill). Gail indicated that this well had been installed without notice, consent, or approval by RWQCB. Since April 18, 1991, Geer Road Landfill has not formally contacted RWQCB regarding their plans to remediate groundwater at the site. The Waste Discharge Requirements for the landfill require the landfill operators to install a groundwater remediation system by January 31, 1992. RWQCB has not formally issued a Cleanup and Abatement Order to the landfill; however, Ms. Wiggett has mentioned to the operators that she has drafted an order which she feels may have pushed them towards attempting to comply to applicable regulations. The landfill operators have been cooperative with RWQCB with a few exceptions. One of which is the issue of installing a remediation well without approval by the Water Board.

Some technical information not previously mentioned;

The Tuolumne River is in the vicinity of the site and apparently does not provide drinking water, it is used as a fishery, and as habitat for fish and wildlife. The Tuolumne may act as a lateral barrier to groundwater flow, and may preclude aquifers in the area that maybe otherwise be hydraulically connected to act independently of one another. This may prevent contaminants in the deeper aquifer from migrating to water supply systems west of (or on the other side of) the river. Groundwater generally flows in a southwesterly direction beneath the site. Two wells near the site have been impacted as a result of contamination; the landfill production well which served as a drinking water supply well during the time the landfill was in operation, and the Byous domestic well which was closed and destroyed following the discovery that it was contaminated with compounds similar to those found in landfill monitoring wells. Apparently the former residents of the property at the south end of the landfill (the Byous family) had sued the County because their water supply well had been contaminated. This information had not previously been provided by the County personnel. They had simply stated that the Byous had sold their property to the County, and had moved away. Ms. Wiggett also mentioned a groundwater "mound" or pumping depression which had possibly been created by the on-site agriculture well. A "mound" was created, causing the contamination and silting up of the old reference (up-gradient) monitoring well 13S. The new up-gradient monitoring well was later installed off site across the street.

The mobile home park across the street from the landfill has four production wells; two active and two inactive. Ms. Wiggett stated that it had been difficult to get a good sample in the past because there has been a lot of air in the pipes which makes it difficult to collect a good volatile organic analysis sample. There are approximately 200 people living in these mobile homes (this was a estimate on Gail's part).

The issue of air and landfill gas contamination is out of the jurisdiction of RWQCB, but the local enforcement agency has reviewed an air SWAT conducted by Brown and Caldwell. Gail mentioned that she felt the ambient air in the immediate vicinity of the landfill was definitely being affected by landfill gas emissions. During a sampling event of the Byous house, she noted that portable organic vapor analyzers (both flame ionization and photoionization meters) were indicating elevated levels of organic vapors. (Further review of the air SWAT report will confirm elevated levels of VOCs existing above the surface of the landfill). I asked Gail if she could send me a copy of the most recent waste discharge requirements for the landfill and the memo to Jerry Irons regarding the remedial action plan for groundwater at the site.

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☒ Phone ☐ Other _____

12/20/91

URS Consultants
Preliminary Assessment
Site Inspection Team

Contact Report

Contact Made Concerning: **CAD983578097**
Geer Road Landfill
751 Geer Road
Modesto, California 95351

Agency or Affiliation Contact: **Del Este Water Company**
Department:
Address: P.O. Box 3250, 430 Tenth Street
City, State, Zipcode: Modesto CA 95353
County: Stanislaus

Representative Contact:

	1.	2.	3.
Name:	Everett "Bud" Turpen		
Title:	Service Manager		
Contact Phone Number:	(209) 522-1073		
Contact Date:	10/31/91		

URS Representative:
Chris Nelson

Comments:

Mr Turpen is the Service Manager for Del Este, and has been with the company for 33 years. The Del Este Water Company service area consists of 18 separate systems. The area of concern on the service map sent by the receptionist consists of three separate systems; 1, 4, and 7. The Empire system (System 4) is one of those systems, and it consists of 3 wells with 1,046 connections, and 996 of them are active. The wells are numbers 47, 49, and 85. Most of the remaining wells in the area to the south of Yosemite and to the west of the railroad tracks serve industries between the river and Yosemite Boulevard. The areas to the east of the Empire service area and the landfill are all served by private domestic wells. There have been no volatile organic compounds detected in any of the Del Este wells; however, dibromochloropropane (DBCP), a soil/nematode fumigant has been detected in some of Del Este's wells. Those wells with DBCP levels above the action level of 0.2 (units not specified) are treated with a granular activated carbon treatment system at the well, and the treatment system renders the well water safe. Del Este is treating 9 wells from all the systems. Number 85 in the Empire system is being treated for DBCP. Some wells are also high in nitrates.

I informed Mr. Terpen that I would fax him a copy of the contact report to confirm that the information conveyed herein is correct. FAX # (209) 572-0539

Confirmation: ☒ Yes ☐ No | **Confirmation by:** ☐ Letter ☒ Phone ☐ Other _____

11/5/91

Appendix B
Site Reconnaissance Report

URS Consultants
Preliminary Assessment
Site Inspection Team

Site Reconnaissance
Interview and Observation Report

Site Information — CAD983578097

Name:	**Geer Road Landfill**
Address:	751 Geer Road
City, State, Zip Code:	Modesto, California 95351
Phone Number:	(209) 525-6552
Contact Name:	Jerry Irons
Date of Site Visit:	10/7/91
URS Site Visit Team:	Chris A. Nelson

Site Representatives

Name :	Tom Shaver	*Title*	Landfill Superintendant
	Jerry Irons		Associate Civil Engineer

Comments and Observations

Tom Shaver is the Landfill Superintendent. He works for the Department of Public Works. Jerry Irons is the Associate Civil Engineer. He also works for the Department of Public Works.

The Geer Road Landfill lies approximately 8-10 miles east of the city of Modesto. The landfill is a 164 acre site of which 144 acres were used for landfill purposes. The landfill was opened in 1972, and accepted class II and III municipal solid wastes from 1972 to 1990. During the period the landfill was operating, there were approximately 15 full time employees working on site. At the time of the URS site visit, the only employees on site were workers conducting closure maintenance (grading, wetting top soil, etc.). The site lies in a primarily rural area surrounded by walnut orchards, row crops, and fallow fields. There are five residences and a mobile home trailer park within 200 feet of the landfill boundaries; however, the site appears to be adequately secured from public access by fences which surround the site. The Tuolumne River flows in a west to northwesterly direction on the southwest border of the site. The site is jointly owned by the County of Stanislaus and the City of Modesto. Before the site was used as a landfill, it was reportedly used for cattle ranching, orchards and row crops.

In 1987 the Stanislaus County Department of Environmental Resources (SCDER) acting on behalf of the State Solid Waste Management Board and the California Regional Water Quality Control Board (RWQCB) ordered the landfill to conduct Water and Air Quality Solid Waste Assessment Tests (SWAT). These tests required the landfill operators to install shallow and deep aquifer monitoring wells to monitor groundwater quality beneath the site, as well as landfill gas probes to determine if ambient air quality was being affected by landfill gasses. By 1991, there are approximately 20 shallow and deep aquifer monitoring wells surrounding the site, and there are approximately 15 gas migration and gas characterization wells installed around the perimeter and within the waste disposal cells of the landfill.

As part of the closure maintenance activities, the landfill operators are planning to place some form of low

Comments and Observations (continued) *10/7/91*

permeability layer over the top of the landfill to avoid topsoil loss, and to keep landfill gases from migrating through the surface of the landfill. During the URS site visit, I observed these activities as Mr. Shaver pointed out the locations of the groundwater and gas wells surrounding the site. Mr. Shaver also explained that the landfill had recently been re-graded for pavement (asphalt) on areas where vehicle access is required. Mr. Shaver pointed out a sedimentation basin on the northern portion of the landfill. This basin is designed to collect rainwater runoff (which will be routed to the basin via a recently re-graded stormwater runoff system) and allow soils and sediments to settle out and collect in the basin. The water collected in this basin is pumped directly into the adjacent Tuolumne River via two 36-inch corrugated steel pipes. When the basin fills up with sediments, the soils are removed and spread out over the landfill surface.

Mr. Shaver also pointed out an excavated area on the southern border of the site which he indicated was once owned by a resident. The landfill owners bought this property and removed the house because the owner of the property had a domestic well on site which was most likely being affected by groundwater contamination from the landfill. This well was destroyed and closed, following the removal of the house. There is a large production well on the northeast corner of the site which has a capacity of approximately 2,000 gallons per minute. This well was previously used by the former owners as an irrigation well, and was later used by the landfill for on-site maintenance purposes. Other wells in the vicinity of the site are reportedly domestic wells and irrigation wells. Public or municipal supply wells are most likely not located within four miles of the site, those wells are most likely located in Modesto, over 8 miles from the site.

The entire landfill is surrounded by either barbed wire fences or berms which appeared sufficient to keep people from accessing the site. To the west of the site, the berm slopes to the west at a steep angle which would preclude anyone from accessing the site. At the bottom of this berm is a small culvert which winds around the southern and western borders of the site. Mr. Shaver indicated that this culvert was once part of an oxbow of the Tuolumne River wherein water from the river would flow along side the land adjacent to the landfill. Mr. Shaver indicated that the soils and geologic materials within the landfill consist primarily of coarse sands and gravels. The upper water bearing sediments are separated from the lower unit by an aquitard of clays and silts. Consultants for Stanislaus County have drilled wells into both of these aquifers. It appears that the lower aquifer has not been contaminated by landfill leachate, while the upper aquifer has been contaminated by halogenated volatile organic compounds at levels meeting or exceeding State and Federal drinking water standards.

Appendix C
Photography Log

FIELD PHOTOGRAPHY LOG SHEET

PHOTO #1

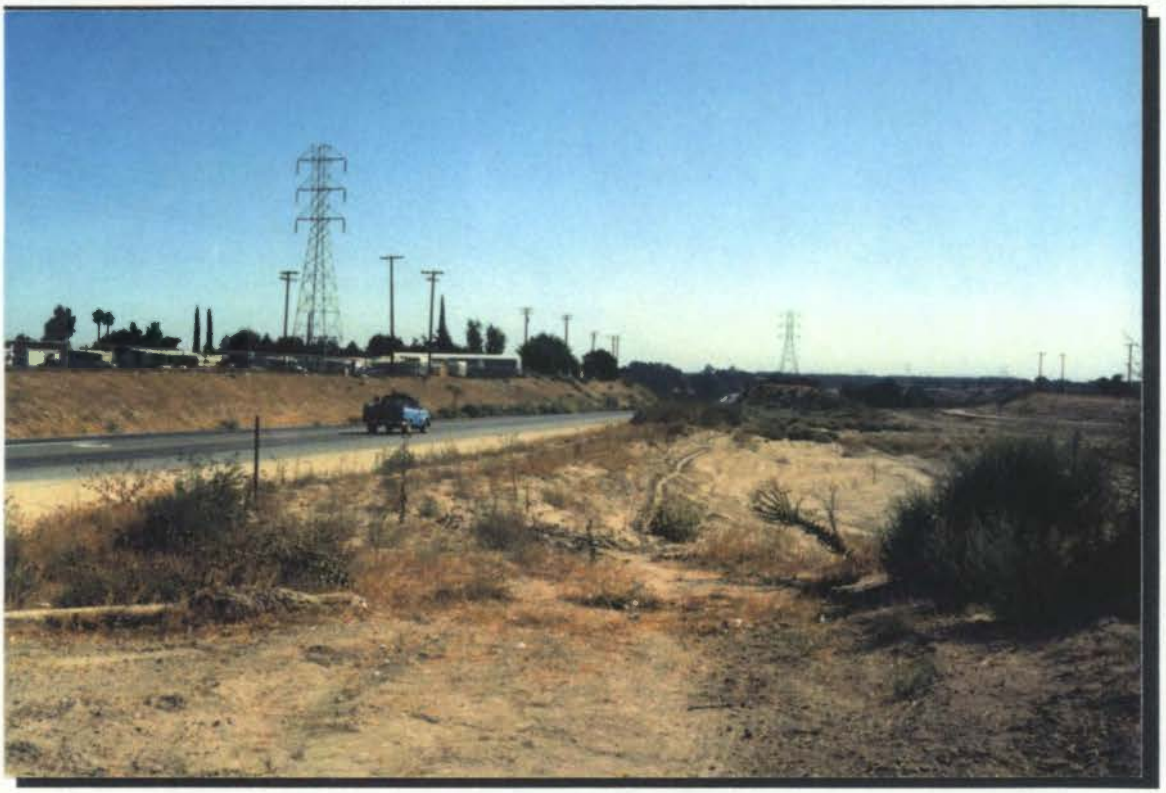
DATE:
10/07/91

TIME:
2:30

DIRECTION:
Southeast

WEATHER:
Clear

PHOTOGRAPHED BY: Chris Nelson



DESCRIPTION: View of mobile home park across Geer Road from the landfill. The landfill is on the right.

PHOTO #2

DATE:
10/07/91

TIME:
2:00

DIRECTION:
South

WEATHER:
Clear

PHOTOGRAPHED BY: Chris Nelson

DESCRIPTION: View of landfill looking south. The surface of the landfill is being regraded and covered with clean soil.

FIELD PHOTOGRAPHY LOG SHEET

PHOTO #3

DATE:
10/07/91

TIME:
2:15

DIRECTION:
Southeast

WEATHER:
Clear

PHOTOGRAPHED BY: Chris Nelson

DESCRIPTION: View of recently re-constructed sedimentation basin. This basin captures runoff from the surface of the landfill. The Tuolumne River is in the background.

PHOTO #4

DATE:
10/07/91

TIME:
2:40

DIRECTION:
West

WEATHER:
Clear

PHOTOGRAPHED BY: Chris Nelson

DESCRIPTION: North end of landfill. View indicates nearest residence just beyond the landfill boundary.

Appendix D
Latitude & Longitude Log

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #1 WHEN USING CUSTOM RULER OR COORDINATOR (TM)

SITE: Geer Road Landfill NUMBER: CAD983578097

AKA: _____ SSID: _____

ADDRESS: 751 Geer Road

CITY: Modesto STATE: California ZIP CODE: 95351

SITE REFERENCE POINT: Approximate location of site.

TOPO MAP Riverbank Quadrangle TOWNSHIP: 4S RANGE: 10E

SCALE: 1:24,000 MAP DATE: Rev 1976 SECTION: 3 1/4 NE 1/4 SW 1/4 NW 1/4

MAP DATUM: ☒ 1927 ☐ 1983 MERIDIAN: Mount Diablo

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP:

LONGITUDE: 120° 45' 00" LATITUDE: 37° 30' 00"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5 SUB-MAP:

LONGITUDE: 120° 50' 00" LATITUDE: 37° 35' 00"

CALCULATIONS: LATITUDE (7.5 MINUTE QUADRANGLE MAP)

A) ALIGN THE BOTTOM OF THE SCALE WITH BOTTOM OF GRID. ALIGN THE TOP OF THE SCALE WITH THE TOP OF GRID. POSITION EDGE OF RULER OVER SITE REFERENCE POINT WHILE KEEPING TOP AND BOTTOM ALIGNED.

B) READ TICS ON RULER AT 1OR 0.5 SECOND INTERVALS. (INTERPOLATE IF POSSIBLE)

00' 11.5"

C) RECORD LATITUDE: 37°37'11.5" N

CALCULATIONS: LONGITUDE (7.5 MINUTE QUADRANGLE MAP)

A) ALIGN THE BOTTOM OF THE SCALE WITH THE RIGHT SIDE OF GRID. ALIGN THE TOP OF THE SCALE W ITH THE LEFT SIDE OF GRID. POSITION EDGE OF RULER OVER SITE REFERENCE POINT WHILE KEEPING TOP AND BOTTOM ALIGNED.

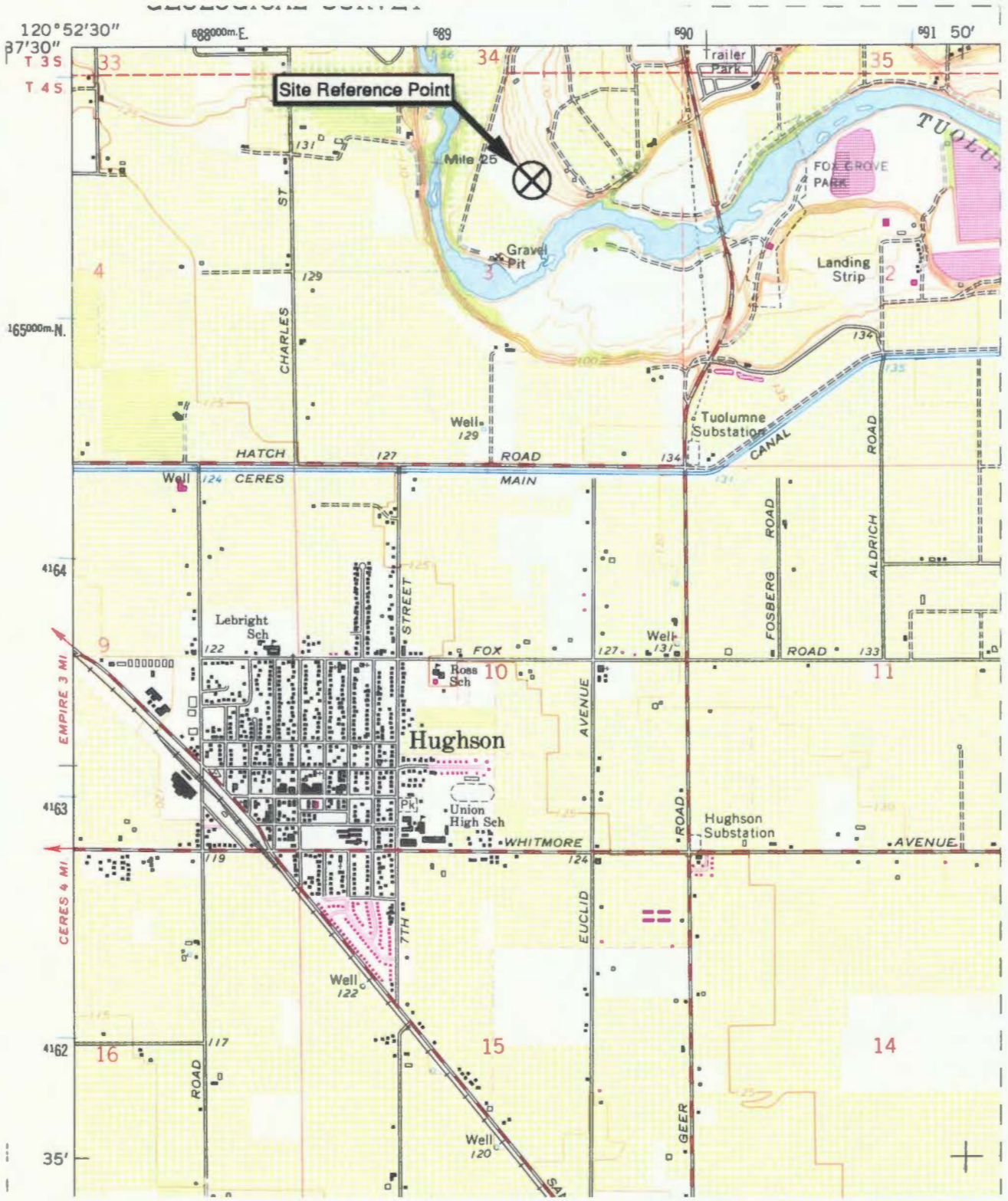
B) READ TICS ON RULER AT 1 SECOND INTERVALS. (INTERPOLATE IF POSSIBLE)

01' 10.5"

C) RECORD LONGITUDE: 120°51'10.5"W

INVESTIGATOR: Kurt D Anderson DATE: 1/29/92

LATITUDE / LONGITUDE DOCUMENT RECORD FORM



Site Name: Geer Road Landfill **EPA ID Number:** CAD983578097

Map Name: Denair Quadrangle **Scale:** 1/24,000 **Datum:** 1929

Coordinates of lower right hand corner of 2.5 minute grid

Latitude: 37° 35' 00" **Longitude:** 120° 50' 00"